

4 UNSCHEDULED MONITORING EVENTS (MAJOR FLOOD EVENTS)

Unscheduled monitoring will be conducted following a significant flood event in order to confirm that the armor layer specified in the design documents protects the underlying layers of the cap from erosional forces. As described in section 2.2.7 of the Engineering Design Report, the cap armor layer was designed to maintain its integrity under reasonable worst-case environmental and human use conditions (e.g., to resist shear stresses under a 100-year flood condition). Therefore, the flood event that will trigger unscheduled monitoring will be defined as a 50-year or higher flood. The strategy, location, and methods for an unscheduled sampling monitoring event remain as described in Section 3 of this report.



5 SCHEDULE

An initial post-construction bathymetric survey of the Deposit 1 cap will occur immediately following completion of the remedial action. The initial post-construction survey will verify the baseline (Year 0) extent of the cap, and along with the post-cap piston core verification data, will serve as the basis to assess long-term stability. Bathymetric surveys and sediment quality monitoring will also be completed during Years 2 and 4 following completion of the remedial action.

Sediment quality monitoring during Years 2 and 4 following completion of the remedial action should be sufficient to document effectiveness of the action over a 5-year period. After the 5-year monitoring period, the data will be summarized and reviewed by Ecology as part of the 5-year MTCA remedial action review. This review will determine the need for and/or scope of future monitoring that may be implemented as part of the long-term monitoring assessment of the Upriver Dam Project.

Table 2 summarizes the year in which each monitoring events will occur. Refer to Section 3 of this report and the SAP (Appendix D of the Engineering Design Report) for the following amplifying information:

- Data objectives, including the rationale for the type, number, location, and frequency of samples to be collected
- Monitoring elements and analyses to be performed
- Sampling equipment and methods to be used



Table 2
Summary of the OMMP Schedule for Deposit 1

Description of Monitoring Event	Year		
	0	2	4
Construction Phase Monitoring¹ Hydrographic surveys Cap thickness verification	X		
Physical Integrity Performance Monitoring Hydrographic surveys		X	X
Sediment Quality Confirmation Monitoring Surface sediment sampling Subsurface sediment sampling		X	X
Unscheduled Monitoring Hydrographic surveys Surface sediment sampling Subsurface sediment sampling	After a 50-year flood event or larger.		

Notes:

¹ Year 0 events described in the CQAP.



6 CORRECTIVE ACTIONS

In the event that monitoring indicates that remedial action performance standards are not being achieved, Avista will submit recommendations for further monitoring or corrective actions to Ecology for review. A response plan will describe additional response actions to be taken to ensure the successful performance of the work. In conjunction with Ecology, Avista will evaluate the extent and significance of the exceedance or trigger. The need for additional response actions will take into consideration all monitoring results relative to an overall assessment of the successful performance of the remedial action. Through these discussions, an appropriate course of action will be developed and implemented, as necessary.

Possible additional response actions may include, but are not limited to, the scenarios detailed below. The specific problem causing the need for a contingency will dictate which additional response actions may be most appropriate.

- **Erosion of Cap Material**
 - Perform additional monitoring to further assess erosion and to determine the extent, cause, and potential solution to the verified erosion
 - Perform additional sediment quality sampling within those erosion areas where there may be a potential for underlying material to be exposed
 - Discuss operations that might contribute to erosion and modifications to these operations that may be required to maintain remedy effectiveness
 - Place additional material with less erosion potential to supplement caps
- **Sediment Cleanup Standard Chemical Exceedance**
 - Place additional capping material
 - Conduct a source control evaluation
 - Conduct confirmation biological sediment toxicity testing to confirm or refute the occurrence of adverse ecological impacts



7 REPORTING

Subsequent to each monitoring event described in Section 5, the Engineer will submit a detailed report to Ecology outlining the actions taken and the results, which will include survey maps and chemical analysis data. A recommendation for further action will be described in detail if warranted.

A Final Cleanup Action Report will be prepared by the Engineer for submittal to Ecology after the completion of the construction activities at Deposit 1. The report will include as-built survey and other appropriate completion information that will serve as the as-built conditions for the cap. The OMMP will be finalized after construction is complete and will be submitted as part of the Final Cleanup Action Report.



8 REFERENCES

- Anchor. 2005a. Draft Final Focused Remedial Investigation Report Upriver Dam PCB Sediment Site. March 2004. Prepared by Anchor Environmental, LLC. Seattle, WA
- Anchor. 2005b. Draft Final Focused Feasibility Study Upriver Dam PCB Sediment Site. February 2005. Prepared by Anchor Environmental, L.L.C. Seattle, WA
- Anchor. 2005c. Draft Remedial Design Work Plan Spokane River Upriver Dam PCB Site. December 2005. Prepared by Anchor Environmental, L.L.C. Seattle, WA
- Ecology. 1995a. Chapter 173-204 WAC. Sediment Management Standards. December 1995. Washington State Department of Ecology. Olympia, WA
- Ecology. 1995b. Department of Ecology 1993-94 Investigation of PCBs in the Spokane River. February 1995. Pub. No. 95-310. Washington State Department of Ecology. Olympia, WA
- Ecology. 2001. Chapter 173-340 WAC. Model Toxics Control Act. February 2001. Washington State Department of Ecology. Olympia, WA
- Ecology. 2005. Final Cleanup Action Plan Spokane River Upriver Dam PCB Site Spokane, WA. Washington State Department of Ecology. Eastern Regional Office Spokane, WA
- EPA. 2001. Coeur d'Alene Basin Remedial Investigation/Feasibility Study. Report prepared for U.S. Environmental Protection Agency by URS, Seattle, WA. October 2001.
- Exponent and Anchor. 2001. Sediment characterization of sediment in the Spokane River upstream of the Upriver Dam. Prepared by Exponent, Bellevue, WA, and Anchor Environmental L.L.C., Seattle, WA.
- Hart Crowser. 1995. Supplemental 1994 Spokane River PCB Investigations, Kaiser Aluminum and Chemical Corporation, Trentwood Works, Spokane, Washington. Report prepared by Hart Crowser, Inc., Seattle, WA. February 2, 1995.
- Johnson, A. 2000. A Reconnaissance Survey on Metals, Semivolatiles, and PCBs in Sediment Deposits behind Upriver Dam, Spokane River. Publication No. 00-03-021, Washington Department of Ecology, Olympia, WA. 17 pp.



- Johnson, A., and D. Norton. 2001. Chemical Analysis and Toxicity Testing of Spokane River Sediments Collected in October 2000. Pub. No. 01-03-019. Washington Department of Ecology, Olympia, WA. 30 pp.
- PSEP. 1997. Puget Sound Estuary Program: Recommended Guidelines for Sampling Marine Sediment, Water Column, and Tissue in Puget Sound. Prepared for the U.S. Environmental Protection Agency Region 10, and the Puget Sound Water Quality Authority. Puget Sound Water Quality Authority, Olympia, Washington.

